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ABSTRACT

This article presents a best practice model for an online teacher education course, illustrating the process of integrating computer and reading literacies to increase learning and improve teaching. Six best practice components were included in the class design: integrative units, small group activities, representing to learn, classroom workshop, authentic experiences, and reflective assessment. The conceptual framework for the model included backward design, audience identification, content, interaction, connecting, and assessment. From implementation of the model, three conclusions were drawn: (1) knowing the students is key to online interactions and individualizing instruction; (2) clear questioning and higher-order thinking is needed; and (3) assessment drives instruction, as seen in the backward course design. (Contains 16 references and 7 figures.) (EF)

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Best Practice Goes Online.

by Bonita L. Wilcox and Linda C. Wojnar

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Best Practice Goes Online

Bonita L. Wilcox
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Abstract

Adding technology to teacher-preparation programs has been a top priority at many institutions. The emphasis is often on connecting technology to the curriculum or on teaching technology as a skill. However, technology is increasingly seen as a key component of literacy, fundamental to a teaching and learning life -- as fundamental as reading, writing, listening, speaking, thinking, and viewing. For this reason, an online teacher-education course was designed, using a "best practice" model to illustrate the process of integrating literacies to increase learning and improve teaching. This article presents that model as a guide for teacher educators interested in designing online courses.

Related Postings from the Archives

- The Breakfast Club Goes Online by John Curry
- Dilemmas in Teacher Education by Joyce McCauley et al.
- Reading Classroom Explorer by Joan Hughes et al.

Why Put Our Course Online? | Where Did We Begin? | What Were the Challenges?
How Did We Ensure Best Practice? | What Was the Conceptual Framework? | How Was It Applied?
How Did Our Model Work? | Would Other Courses Fit the Model? | What Did We Learn? | References

> When you watch students slogging through textbooks, memorizing lists, being lectured at, and working on isolated skills, you begin to realize that nothing bears a greater responsibility for undermining educational excellence than the continued dominance of traditional instruction (Strickland & Strickland, 1998, p. 51).

A recent advertisement in *The Chronicle of Higher Education* stated that "living without technology is not an option." Agreeing with this, and also believing that technology could offer experiences and opportunities to students in our teacher-certification program that were beyond our imagining, we began to think about putting a course online. We had been using a "telling approach" for teaching and learning *about* technology, but we realized that *doing* technology would be more beneficial for our students. We therefore began to explore the idea of redesigning "Instructional Techniques," a required course for fifth-year students in our Initial Certification program. It seemed to us that this methods course in innovative techniques for content area teaching would be perfect to offer online.

Why Put Our Course Online?

We thought an online course would be convenient for students trying to schedule school along with responsibilities of home and work. But more important, as teachers, we know the importance of modeling "best practice" strategies for our students. We had been to several seminars about teaching online and had viewed courses with some online components; we thought that these experiences, coupled with our

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background knowledge of effective teaching for lifelong learning, would help us create a high-quality, pedagogically sound online course. We wanted to "practice what we teach" and apply best practice strategies ourselves. Many online courses demonstrate some of these strategies, but few have all the components we think necessary to be considered a best practice model.

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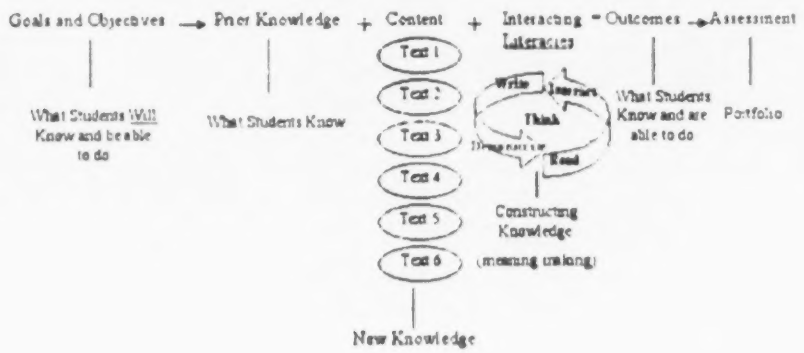
Where Did We Begin?

Actually, we began with a course we have taught many times in a traditional classroom. We know the course well. The content-enriched syllabus is its driving force, but what makes it exceptional is its embracing of the concept of integrating literacies. This idea comes from whole language and constructivist approaches, where students make their own meanings and deepen their understandings through reading, writing, listening, speaking, viewing, and thinking. Strengthening reading is seen to strengthen writing, strengthening writing strengthens thinking, and so on. From the beginning we stressed projects, presentations, demonstrations, and alternative assessment.

We have plenty of evidence of student learning through artifacts in their reflective journals and portfolios. Students were required to write a letter for their portfolios at the conclusion of the course, reflecting on the question "What did I learn?" Structuring the course to begin with objectives, add content, integrate literacies through instructional strategies, and end with personal evidence of learning identified by each student seemed basic to us. An early publication by Zemelman, Daniels, and Hyde (1993), *Best Practice: New Standards for Teaching and Learning in America's Schools,* along with our own professional reading and attendance at conference sessions, confirmed that others were using these methods for teaching. Figure 1 illustrates the course design and shows the importance we place on outcomes, content, and meaning making through integrating literacies.

Figure 1
Model of the Traditional, Classroom-Based Instructional Techniques Course



Trying to envision how our traditional classroom course would play out in a "virtual" classroom required creative thinking, thinking "out of the box" of traditional teaching and learning. We wanted to develop a visual representation, and to do so we needed to assess our organizational skills and sharpen our vision of the course design.

After several attempts, we began to organize the new online version of the course through storyboarding. We purchased a large poster board and a multitude of small self-adhesive notes in different colors that could quickly and easily be added, removed, or repositioned on the poster. Starting with the syllabus, we placed six colored notes vertically down the center of the poster to represent each text that would be used during the semester. Notes relating information and assignments for each text were the same color, and were placed horizontally on the poster. The note to the right of the text was always an image of that text. Moving left, the notes followed this sequence: tasks, sample exercises, questions for discussion, instructions for assignments, and assessment strategies. Note by note, we put the course together, incorporating content, tasks, and

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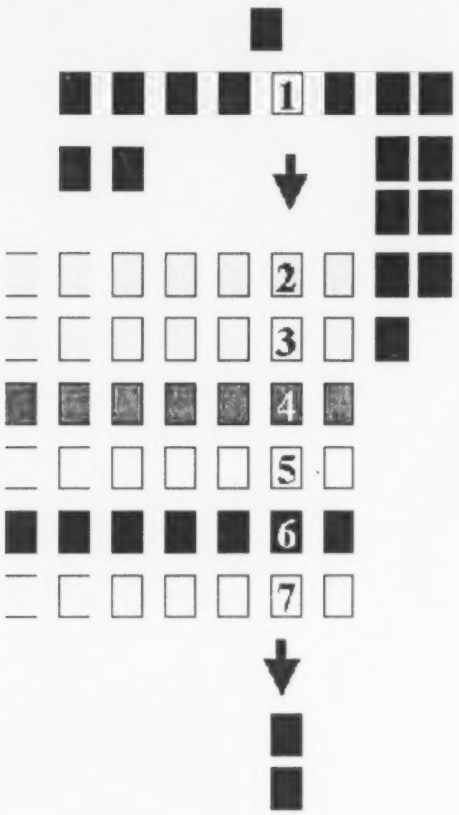
assessments from the traditional class. The resulting storyboard is illustrated in Figure 2.

Figure 2
Storyboard Representing the Initial Model of the Online Course



At the top of the poster board, we included all the information found in our syllabus. We also included assessment rubrics, portfolio requirements, information about acceptable manners in the online environment ("netiquette"), and journal format. Each note on the storyboard was assigned a Uniform Resource Locator (URL), or Internet address, that would correspond to a link on the course Web site.

Central to this planning and develpment phase was ensuring that the online course maintained the components of a best practice model found in our traditional course. The classroom-based course is student centered, authentically assessed, and delivered in a workshop style where students construct their own knowledge. It encourages active learning both individually and in cooperative groups and provides authentic problem-solving experiences. It requires the total engagement and commitment of students as they integrate reading, writing, critical and reflective thinking, listening, interacting, and demonstrating.

For the course to go online, integrating technology would also be necessary. We view technology as its own literacy, as an essential tool to support other literacies, and as a means of supporting and enhancing the curriculum, agreeing that "technological literacy -- meaning computer skills and the ability to use computers and other technology to improve learning, productivity, and performance -- has become as fundamental to a person's ability to navigate through society as traditional skills like reading, writing, and arithmetic" (Selfe, 1999, p. 3). We also understand that assessment drives instruction but agree with Strickland and Strickland (1998) that "the central function of assessment...is not to prove whether or not teaching and learning have taken place, but to improve the quality of teaching and learning, and to increase the likelihood that all members of society will acquire a full and critical literacy" (p. 27).

Our goal, then, was to keep all the components of best practice from our traditional course in place, but we

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wondered how they would change on a technological landscape.

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What Were the Challenges of Putting the Course Online?

We had limited resources in the areas of time to design or implement the course and of funding for clerical and technical support; we also had no formal training for putting a course online. However, we did have a strong desire to teach online and an in-depth understanding of *what* and *how* to teach. In addition, we were deeply committed to learning whatever was needed to achieve our goal of putting a quality course online. We broadened our knowledge base by doing extensive research and by taking advantage of professional development opportunities in computer technology. We were passionate about this, and every hurdle seemed to make us more determined to succeed.

Because we had no funding, we did all the work ourselves. The short period available for planning resulted in problems that would have been avoided had we had more time. Because we needed to fit in work on the online course around our other teaching responsibilities, the move from a literal progression to cyberspace became overwhelming at times. Also, as each note on the storyboard became a Web page, we could spare little time for testing before mounting it on our Web server.

The technology itself was always a challenge. Fortunately, our graduate assistant had taken several courses in multimedia and was able to insert HTML tags in text files, scan documents, and save images to develop Web pages (such as that shown in Figure 3, below) that were linked to create a course Web site. After several weeks we learned to use Netscape Composer to create the basic course content pages for the Web site, but they still needed to be fine-tuned with an HTML editor. We also began to explore creating enhancements to the pages, using software such as PhotoShop and a digital camera to add the colorful covers of our texts and some graphic organizers.

Figure 3
Sample Page from the Course Web Site

Websites

Refer to the following web sites for more information:

Discovery Guide

Education Week

International Reading Association

Meta search engine

U.S. Department of Education

National Council of Teachers of English

National Council of Social Studies

National Council of Teachers of Mathematics

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Updated April 27, 2000
http://www.home.duq.edu/~wilcox/index.html
Page content © Dr.Bonita Wilcox
Html by Maria H. Kish, Multimedia Technology Graduate Student

Further challenges arose early in the semester when the course was first offered. Linda took the lead in troubleshooting technical problems while introducing students to the software and assisting them in becoming knowledgeable about the required computer procedures and applications. Students needed to learn how to download and upload files, send e-mail attachments, connect to the Web site, and use the software we chose for communication and interaction.

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How Did We Ensure Best Practice in the Online Course?

From a movement by curriculum specialty organizations such as the National Council of Teachers of English, the National Council of Teachers of Mathematics, the International Reading Association, and many others that emphasized standards, the concept of "best practice" developed. Certain educational activities stood out as best practice -- the most effective methods for teaching, learning, and assessing. In *Methods That Matter: Six Structures for Best Practice Classrooms,* Daniels and Bizar (1998, p. 5) identify six components of a "best practice classroom":

- Integrative units -- extended thematic, interdisciplinary inquiries co-planned with students, drawing on

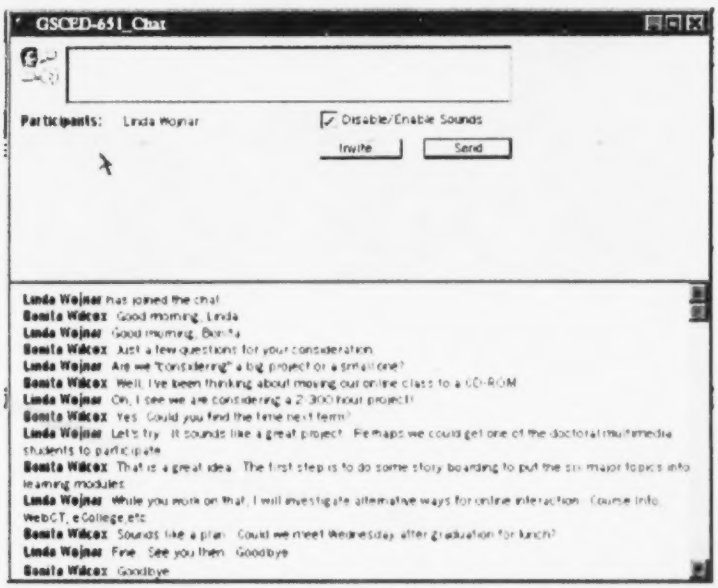
knowledge and skills from across the curriculum.

- Small group activities -- structuring collaborative pairs, groups, and teams which decentralize the classroom and individualize the curriculum.
- Representing-to-learn -- engaging ideas through writing and art; exploring genres and media of expression as ways of investigating, remembering, and applying information.
- Classroom workshop -- applying the studio-apprenticeship method, with teacher modeling and coaching, student choice, responsibility, and exhibition.
- Authentic experiences -- curriculum-centered ways of bringing life into school, and students into the community for research and service.
- Reflective assessment -- nurturing student reflection, goal-setting, and self-assessment; widening the evaluative roles and repertoires of teachers and parents.

We worked to include these components, present in our traditional course, in the online version. We also identified several factors that would require special consideration in the online environment. For example, from our teaching experience and professional reading we understood the importance of interaction in the classroom community. We planned on using a program called First Class Client for online "chats" in two formats:

- Asynchronous chats allow students to enter questions about or responses to their reading at any time in a designated place. Responses are threaded so students can respond to different discussion. This gives students adequate time to think about and complete class assignments on their own schedules, encouraging quality work, critical thinking, and reflection about course content.
- Synchronous, or "real time," chats (see Figure 4) take place with the entire class online simultaneously at a specified time, providing a forum for spontaneity in asking and answering questions and integrating content and activities similar to that of a traditional classroom.

Figure 4
Screen from a Synchronous Chat


GSCED-651_Chat
Participants: Linda Wojnar
Disable/Enable Sounds
Invite
Send
Linda Wojnar has joined the chat
Bonita Wilcox Good morning, Linda
Linda Wojnar Good morning, Bonita
Bonita Wilcox Just a few questions for your consideration
Linda Wojnar Are we "considering" a big project or a small one?
Bonita Wilcox Well, I've been thinking about moving our online class to a CD-ROM
Linda Wojnar Oh, I see we are considering a 2-300 hour project!
Bonita Wilcox Yes. Could you find the time next term?
Linda Wojnar Let's try. It sounds like a great project. Perhaps we could get one of the doctoral multimedia students to participate
Bonita Wilcox That is a great idea. The first step is to do some story boarding to put the six major topics into learning modules
Linda Wojnar While you work on that, I will investigate alternative ways for online interaction. Course Info, WebCT, eCollege,etc
Bonita Wilcox Sounds like a plan. Could we meet Wednesday after graduation for lunch?
Linda Wojnar Fine. See you then. Goodbye
Bonita Wilcox Goodbye

Before the course began, we collaborated with each student to identify personal, professional, and course goals; teaching and learning philosophies; and assumptions about online versus traditional teaching and learning. Students were also asked to reflect on several questions meant to connect the course content to their prior knowledge. Weaving the needs and interests of the students into course content and curriculum is important in creating student-centered, individualized instruction.

Besides interaction and individualization, another significant consideration was online assessment. Bonita took

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the lead here. Portfolio guidelines were transferred to Web pages. Students learned that assessment would be three-fold -- formative (stressing process with suggestions for improvement), summative (the final product received the grade), and reflective (striving to meet goals and make meaning by mixing new knowledge with old). Assessment was multidimensional, authentic, and conducive to learning. Students chose their own artifacts for their portfolios, including academic journals, videotapes, and computer disks. Every artifact was assessed before it was put into the portfolio. In the end, the portfolio was assessed holistically using a rubric.

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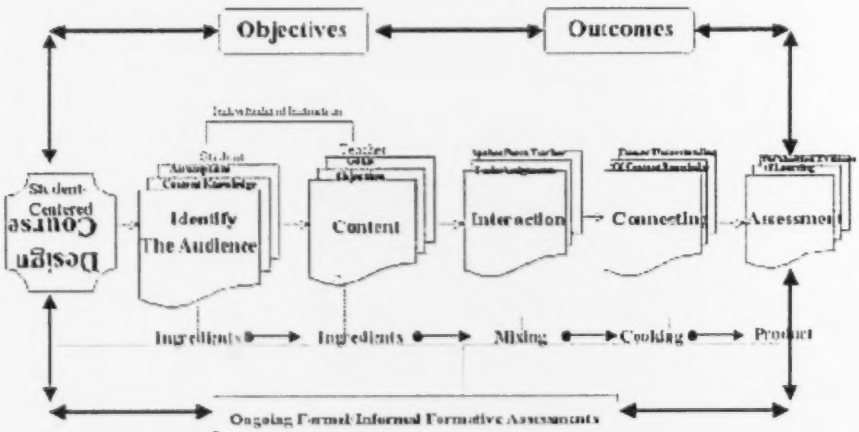
What Was the Conceptual Framework for Our Best Practice Model?

The idea that "multimedia authoring and reading skills will be generic literacies in the information age" (Bolter, 1998, p. 11) changed our thinking about the importance of visual literacy and the use of graphics in electronic text. Therefore, our model for the online course, shown in Figure 5, uses icons and visual cues to symbolize connections and relationships of core components. In its elaborated form, it also provides background knowledge and clarification of concepts and theories of each component it includes, along with documentation from research. Each component is so vital that removing or ignoring any one takes away the possibility of the model representing best practice.

Figure 5
Best Practice Model of Online Teaching and Learning



As represented by the inverted words "Design Course" at the left, the model is patterned after the ***backward design*** described by Wiggins and McTighe (1998), who credit it to Tyler (1949). This design forces the teacher to plan and think through the entire course from the "end user," or student, perspective. This idea is in line with current standards and can be used to plan a lesson, a unit of study, or a course.

Identify the audience comes from Wagner (1997, p. 35), who asserts that knowing the audience is necessary to increase comfort levels of students and teachers. Gathering data to identify and analyze the audience can take many forms. For example, we can distribute a questionnaire, collect information on index cards, or simply ask questions orally. Not only is it essential to know your students before you develop tasks and assignments, but you must also know where they are as they move through the course. This is what is commonly called monitoring and managing student learning.

Much of the ***content*** of a course can usually be determined by looking at the syllabus. One form of content knowledge comes from texts, lectures, and other resources, but very often we forget about "pedagogical content knowledge," as defined by Lee Shulman (cited in Grossman, 1990, p. 149): the knowledge required to *teach* specific school subjects. Teaching science, writing, or mathematics requires the particular habits of mind and ways of knowing practiced by real scientists, real writers, or real mathematicians. Course goals,

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objectives, and other supporting details contained in the course syllabus often reflect only one kind of content. However, the pedagogical aspects of effective strategies and methods are more difficult to determine. In the education of teachers we stress the pedagogical aspects.

While many traditional teachers think of themselves as dispensers of knowledge, they must understand that this does not equate to student learning. Students have a more important part to play in learning than memorizing and recalling information on tests. When the content appears to have a purpose to the students, they become motivated to learn. Current literature asks for a more cooperative relationship between students and teachers and advocates decision making, problem solving, discovery, and projects. Learning, at all levels, is a process (Daniels & Bizar, 1998).

Interaction is the heart and most vital component of the model. It provides the means for students to take what they have learned, think critically about it, reflect on their interpretations of and connections with the content, and through analysis and synthesis link essential information to prior knowledge. More important than this, these connections, automatically made in the brain, are almost impossible to stop (Zemelman, Daniels, & Hyde, 1998).

Most educators understand the importance of ***connecting,*** of asking students to relate new learning to what was previously understood, especially through writing (Fulwiler, 1988). Whether online or off, students need to monitor and manage their *own* learning, keeping track of it, setting goals and determining the level of accompiishment, and redirecting their attention accordingly. This encourages student choice in developing projects that offer authentic experiences and resulting increases in motivation and engagement. Putting students in a position where they have to make their own meaning results in a deeper understanding of content.

Through ***assessment,*** students and teachers are able to make learning not only visible, but tangible (Wilcox & Tomei, 1999). Students can demonstrate evidence of thinking, learning, and growth. Teachers may not be aware of all the learning and understanding that takes place with their students. With formative assessment measures obtained throughout the semester, the teacher builds flexibility into the syllabus and can make adjustments as necessary to meet student needs and address differences in knowledge, skill levels, and learning styles. These assessments are especially helpful in providing scaffolding for students as they meet new challenges.

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How Was the Conceptual Framework Applied?

We combined Daniels and Bizar's (1998) six structures with the following 13 principles of best practice learning (Zemelman, Daniels, & Hyde, 1998, p. 8):

1. Best practice is *student centered.* The best starting point for schooling is young people's interests. Across the curriculum, students' own questions should take precedence over studying content arbitrarily selected by people removed from the classroom.
2. Best practice is *experiential.* Active, hands-on, concrete experience provides the most powerful and natural form of learning. Students should be immersed in the most direct possible experience of the content of every subject.
3. Best practice is *holistic.* Young people learn best when they encounter whole ideas, events, and materials in purposeful contexts, not by studying portions isolated from actual use.
4. Best practice is *authentic.* Real, rich, complex ideas and materials are at the heart of the curriculum. Lessons or textbooks that water down, control, or oversimplify content ultimately disempower students.
5. Best practice is *expressive.* To fully assimilate ideas, construct meaning, and remember information, students must regularly employ the whole range of communicative activity -- speech, writing, dance, drama, music, movement, and visual arts.
6. Best practice is *reflective.* Balancing immersion in experience and expression must be opportunities for learners to reflect, debrief, and abstract from their experiences what they have felt and thought and learned.

7. Best practice is *social.* Learning is always socially constructed and often interactional; teachers need to create classroom interactions that "scaffold" learning.
8. Best practice is *collaborative.* Cooperative learning activities tap the social power of learning better than competitive and individualistic approaches.
9. Best practice is *democratic.* The classroom is a model community; students learn what they live as citizens of the school.
10. Best practice is *cognitive.* The most powerful learning comes when young people develop true understandings of concepts through higher order thinking associated with various fields of inquiry and through self-monitoring of their thinking.
11. Best practice is *developmental.* Children grow through a series of definable but not rigid stages, and schooling should fit its activities to the developmental level of students.
12. Best practice is *constructivist.* Children do not just receive content; in a very real sense, they re-create and reinvent every cognitive system they encounter, including language, literacy, and mathematics.
13. Best practice is *challenging.* Students learn best when faced with genuine challenges, choices, and responsibility for their own learning.

Figure 6 illustrates how these principles were integrated into our "Best Practice Model for Online Teaching and Learning." First, we explore what the student knows. Whether through written biographies or papers on their philosophy of teaching, students are asked to articulate background knowledge and identify course and professional goals. (Sometimes a questionnaire is the best way to determine content knowledge.)

Figure 6
Elaborated Best Practice Model

Teaching and learning revolves around content or a body of knowledge or information. Content comes in many forms besides textbooks. For example, the World Wide Web offers an abundance of resources. Video documentaries and dramas are available through catalogs. Journal articles and other handouts contain valuable information and suggest new ways of thinking about things. In addition, information and perspectives are continually argued and defended in discussion supported and guided by teacher input.

To take an online course, students require considerable knowledge (and a great deal of patience). They must download and upload files, send attachments, use the Internet to complete assignments, and effectively navigate a variety of software packages. This is in addition to a working knowledge of word processing and e-mail. Technology does allow students to have control over "think time" in asynchronous chats, giving them the ability to decide on the day and time they will respond and the length of that response. However, during synchronous chats, when everyone is together, thinking and responding must be focused and well organized, and students must be mindful of others in the chat. (This is important because the chat advances at a different pace than regular discussion and provides no verbal or auditory, nonverbal, or visual help with interpretation. Even for the professor, chats can be a disaster if spelling or keyboarding skills are not adequate.)

Before the course began, students who had registered were asked to complete a questionnaire outlining their

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background knowledge, technical skills, computer equipment, learning styles, teaching and learning philosophy, typing skills, time-management skills, and comfort level with online environments and in adapting to new situations. If it was obvious that there were too many hurdles, we suggested that the student take a traditional class.

Those of us who have worked with technology know how unpredictable it can be. For example, one student may not be able to connect for a scheduled real-time chat, or another student may suddenly be disconnected. Adjustments must be made in a timely fashion. Accepting changes and adjusting attitudes for online teaching and learning can be difficult for students with differing learning styles. But problem solving as an instructional strategy is also important. Students who practice solving problems -- whether through teacher-guided tasks or self-initiated projects -- become better problem solvers.

A metacognitive approach to teaching and learning online is essential, especially because students are in charge of their own progress. Through setting goals and reflecting on strengths and weaknesses, students learn self-assessment strategies. Through rubrics, teacher modeling, and peer assessment students discover more holistic and accurate ways to assess their work. The idea of moving through a learning experience is one thing, but looking at that same experience and thinking about how to make it better is another. Teacher-initiated activities, such as minilessons presented on video, encourage reflective self-assessment.

Concentrating on higher order thinking skills (HOTS) can result in more learning and deeper understanding. The teacher can challenge students with structured but open-ended activities. When students participate in raising questions to higher levels and moving from abstract to concrete experiences, they gain understanding of how higher order thinking skills can be learned. Through purposeful online exercises, students are able to connect relevant experiences to Bloom's taxonomy of higher level thinking (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956). With more practice students learn to transfer and model these thinking skills in presentations and projects.

From designing and delivering lesson plans to integrating technology and Internet resources, activities should emphasize content knowledge and authentic experiences. Ways of knowing and habits of mind vary among the disciplines, yet students working in groups benefit from the diversity of approaches to problem solving, presentations, papers, journal writing, lesson plans, chats, and projects. The benefit of group activities is especially noticeable in the ways individual students enhance their own lesson presentations using cooperative learning groups. "The key is providing students with activities that have relevance and meaning built right in, whether they occur inside or outside of the classroom" (Daniels & Bizar, 1998, p. 175).

"Interactive play increases literacy learning in grades K-12 by fostering a community atmosphere, encouraging teamwork, and reducing the influence of hierarchies" (Fredericksen, 1999, p. 116). This seems to be true with students of all ages, especially when the games are purposeful, high-level tasks. A recent Kellogg Commission report advises that "colleges should teach students critical-thinking skills using collaborative, interactive teaching methods, and should invest in new classroom technologies and in faculty development" (McCollum, 1999, p. A-39). Interaction online is no more difficult to achieve than interaction in the classroom. Students will seize opportunities to dialogue with the teacher if she is logged online during unscheduled times.

Many teachers have found the "writing to learn" approach (Fulwiler, 1988; Zinsser, 1988) beneficial for students at all levels. "Representing to learn" (Daniels & Bizar, 1998) works much the same way -- it is an old concept with a new name. When students transform information from one medium to another by creating a new representation, their learning increases. Making a video, creating a poster, paraphrasing, writing dialogue, keeping logs, and portfolios are all examples.

Instruction that is based on the interest and natural curiosity of the class allows student choice in solving problems, doing research, creating projects, and making discoveries. A constructivist approach to teaching and learning allows students to develop their own ways of knowing. When students are engaged in discovery learning and meaning making, they are in the process of building their own knowledge base.

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How Did Our Model Work?

The course content, which explored innovative instructional strategies applicable across grade levels, lent itself to interdisciplinary student inquiries. Small groups were formed to foster thinking and learning as social and democratic activities, following the model used in the National Writing Project that advocates the concept of teachers teaching teachers. Authentic experiences and real applications were essential for the inservice classroom teachers for whom the course was originally designed. Reflective self-assessment in the initial course came from alternative assessment strategies, specifically through portfolios. All this resulted in more active engagement and deeper understanding of content, with increased likelihood of transfer to the workplace.

As we implemented our model for the online course, we changed our thinking and the course structure in the following ways:

- Journal writing and reflective self-assessment moved to a higher level with the academic "thinking journal" concept.
- Students had more responsibility and accountability for monitoring their own progress; self-regulation became a priority.
- Students had increased "ownership" of assignments and tasks, and they were provided with choices.

In our model, students monitor and manage their own time and progress by setting and meeting goals and deadlines. We continued to teach from a coaching-guiding-facilitating stance, supporting student learning through the use of scaffolding, streaming depth and degree of information as needed. Students recorded their thoughts about content and tasks, making connections through conversations with peers, the teacher, and themselves. Reading, assessments, reflection, and interaction enabled students to extend their thinking and move to deeper understandings. Feedback was given in a timely manner using rubrics and online assessments.

Bloom's taxonomy was used throughout the course to identify and develop applications of higher level thinking through structured activities. It was also used to critique objectives and oral questioning techniques, and in designing tasks. We found that when we raised questions to a higher level through prompts or modeling, student answers were at a higher level and they seemed more engaged. Entries in academic "thinking journals," a required part of students' portfolio where they took time to analyze and synthesize content from texts and predict how the information might be used in the classroom, often provided evidence of students' higher level thinking.

When students had input into their assignments, they became more engaged and the assignments themselves became more authentic. When students constructed their own knowledge base, building on prior knowledge and sharing their knowledge through meaningful assignments and tasks, they could demonstrate evidence of growth in learning. Students provided evidence of quality online work through lesson plans, a synthesizing project, formal papers, teaching an online lesson to the online class, peer reviews, journal writing, and a portfolio exhibition. The portfolio exhibition is representing to learn at a very high level, and in our online course the evidence indicated that the self-directed learning with teacher facilitation was extremely successful. The exhibition was held at the university, and this was our only face-to-face meeting once the online course began.

We found that our best practice strategies work well in a "virtual" classroom. Students seem to be more honest and more likely to admit confusion when they are not face to face with the instructor. Quite often, this open communication resulted in a mentoring relationship between instructor and student. But online teachers should be prepared for this additional time spent with students and the additional energy required to keep them on task. Further, we discovered that we needed to consider not only a student's need to be competent in using computer tools, but also that technological literacy "requires a set of critical skills, concepts, and problem-solving abilities" (American Association of University Women, 2000, p. x) that actually involve a difference in habits of mind and ways of knowing.

From their portfolios, we could see that students had had many valuable learning experiences, gained confidence in their writing, demonstrated competence in critical literacies, and increased their higher order thinking and problem-solving skills. The final portfolios were comparable to what students in the traditional

classroom produced. However, the increased dialogue we had with our online students resulted in better understanding of them -- how they think and how they learn. Of course, just as in the traditional classroom, online teachers must focus on those students having a difficult time. For this reason, online classes should be kept small enough for all to succeed. From our experience, we think that a teacher:student ratio above 1:12 results in decreased quality of teaching and learning.

When we asked for student feedback, we discovered that four important aspects of our teaching and learning model were actually strengthened in the online course. First is students' freedom to say what they really think as they interact with the instructor and with other students. Second is the increased responsibility of their new role in monitoring and managing their own learning. Third, students indicated that they learned more about themselves and their habits of mind and ways of knowing through this online course. And of course, we all gained expertise in technology. These four areas were not identified by students to this extent in the traditional class, either in written comments or informal discussions.

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Would Other Courses Fit Our Model?

If you would like to develop a best practice online course from a traditional course, follow these steps:

1. Set your goals and decide on outcomes -- what do you want the students to know and be able to do?
2. Consider your audience -- how will they learn best?
3. Plan for assessment -- how will you know when and how well they are able to do what you intended?
4. Adjust the content -- what is really important for students to know?
5. Consider the tasks and activities needed for exploration or practice with new content -- what authentic experiences could be arranged so students could apply new concepts and move to deeper understandings?
6. Find ways to enhance the assignments by engaging students in reflection and self-assessment through activities offering more choices and giving students more responsibility to make their own meaning and construct their own knowledge.

Figure 7, available as a separate document to facilitate downloading and printing, presents a graphic organizer that elaborates on these six steps.

It seems to us that many courses would fit our model. Portfolio assessment and reflection in academic thinking journals are a hard sell to many teachers because they are time consuming, but the rewards are great. Working in small groups and workshop methods worry teachers who are concerned with covering the content. However, getting away from the traditional "teacher as teller" stance to the "teacher as facilitator" will better prepare students for the workplace. "Many adults, when asked to identify their most meaningful learning experiences in school, warmly remember working with friends to address difficult problems that would have been hard to solve on their own" (Daniels & Bizar, 1998, p. 58). Perhaps we are sometimes too concerned with content when we could be emphasizing life skills, such as problem solving and discovery learning.

Following is a list of resources that might be useful if you are thinking about moving your course online.

Books

Boaz, M., Elliott, B., Foshee, D., Hardy, D., Jarmon, C., & Olcott, D., Jr. (1999). *Teaching at a distance: A handbook for instructors.* New York: The League for Innovation in the Community College/Archipelago.
This book provides an introduction to designing and implementing a distance learning course. The text is written by experienced distance learning teachers from a number of universities.

Castro, E. (1997). *HTML for the World Wide Web.* Berkeley, CA: Peachpit.
A useful text for teaching yourself HTML quickly and easily.

Crumlish, C., & Humes, M. (1996). *Web publishing with Netscape for busy people.* Berkeley, CA:

Osborne/McGraw-Hill.
This book focuses on exactly what you need to know to create a Web page.

Shambaugh, N., & Magliaro, S. (1997). *Mastering the possibilities: A process approach to instructional design.* Boston, MA: Allyn & Bacon.
A learner-centered, workbook approach to instructional design is presented through projects.

White, K., & Weight, B. (2000). *The online teaching guide: A handbook of attitudes, strategies, and techniques for the virtual classroom.* Boston, MA: Allyn & Bacon.
This easy-to-read guide, written by teachers at the University of Phoenix Online Campus, offers a helpful overview of strategies for teaching online.

Wiggins, G., & McTighe, J. (1998). *Understanding by design.* Alexandria, VA : Association for Supervision and Curriculum Development.
This text is helpful in designing lessons and courses for deep understanding and for information about performance assessment. It has an accompanying workbook.

Websites

American Distance Education Consortium
A very useful resource that outlines distance education programs using technology.

HTML Crash Course for Educators
HTML tutorials tailored right to us.

HTML Help by the Web Design Group
A useful site for Web authoring, references, tools, and design elements.

International Society for Technology in Education
This site provides standards, information about research projects, and professional development resources.

Learn HTML
Barebones information and a brief list of links.

United States Distance Learning Association
Find support for trainers and educators at a distance.

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What Did We Learn?

We learned that knowing your students is key to online interactions and individualizing instruction. In a traditional classroom, teachers identify students who excel or those who have great difficulty, but they rarely get to know the majority of students between those extremes. Taking time to demonstrate that you care about all your students, that you value them and their thinking, increases the possibility of their taking more of an interest in quality of their own work and learning.

Another area of learning centered on questioning and higher-order thinking. We found that we got what we asked for -- and what we asked for was not always what we really wanted. Instead of prompting quick-recall answers, we started asking questions that required processing and application of information. We gained skill in designing questions, and students gained experience in responding to questions at higher levels. This technique was used to scaffold their skills and knowledge, too. The interaction in groups required defending and justifying thinking, initiated rethinking, and strengthened engagement and commitment to learning new information.

Finally, we learned that assessment drives instruction. Working from a backward course design enabled us to structure learning tasks to meet individual student needs while moving toward our goals and objectives. From

the students' perspective, the most valuable lesson was the necessity of understanding one's own habits of mind and ways of knowing, in order to regulate and monitor one's own learning.

When technology is truly integrated into instruction, the whole is greater than the sum of the parts. We can't go back to our traditional course and expect students to learn the same content in the same way now that we have explored the pedagogical potential of an online course. Some of the time, we felt like white-water rafters focusing on the unexpected out of necessity. At other times, we felt like pioneers, not knowing the terrain but motivated to reach the new frontier. Why not take your mind on an adventurous cruise into cyberspace?

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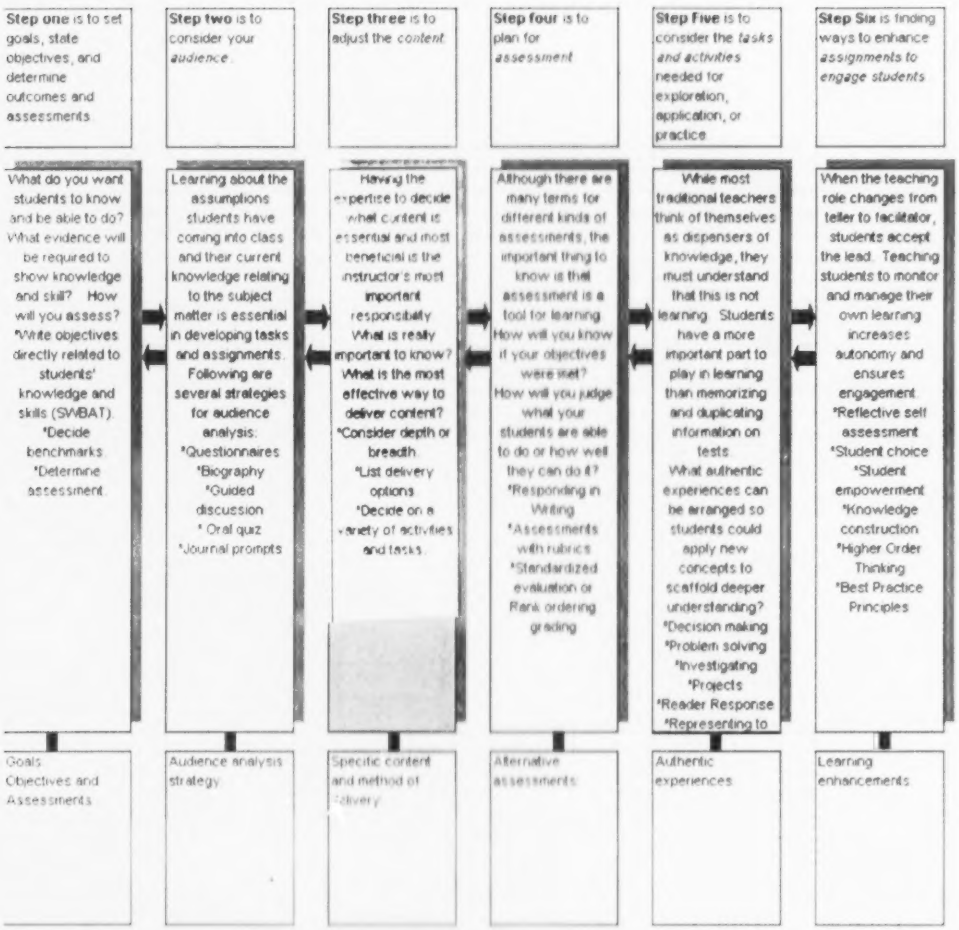
Figure 7


Step one is to set goals, state objectives, and determine outcomes and assessments.
Step two is to consider your *audience*.
Step three is to adjust the *content*.
Step four is to plan for *assessment*.
Step Five is to consider the *tasks and activities* needed for exploration, application, or practice.
Step Six is finding ways to enhance *assignments to engage students*.
What do you want students to know and be able to do? What evidence will be required to show knowledge and skill? How will you assess? *Write objectives directly related to students' knowledge and skills (SWBAT). *Decide benchmarks. *Determine assessment.
Learning about the assumptions students have coming into class and their current knowledge relating to the subject matter is essential in developing tasks and assignments. Following are several strategies for audience analysis: *Questionnaires *Biography *Guided discussion *Oral quiz *Journal prompts
Having the expertise to decide what content is essential and most beneficial is the instructor's most important responsibility. What is really important to know? What is the most effective way to deliver content? *Consider depth or breadth. *List delivery options. *Decide on a variety of activities and tasks.
Although there are many terms for different kinds of assessments, the important thing to know is that assessment is a tool for learning. How will you know if your objectives were met? How will you judge what your students are able to do or how well they can do it? *Responding in Writing *Assessments with rubrics *Standardized evaluation or Rank ordering grading
While most traditional teachers think of themselves as dispensers of knowledge, they must understand that this is not learning. Students have a more important part to play in learning than memorizing and duplicating information on tests. What authentic experiences can be arranged so students could apply new concepts to scaffold deeper understanding? *Decision making *Problem solving *Investigating *Projects *Reader Response *Representing to
When the teaching role changes from teller to facilitator, students accept the lead. Teaching students to monitor and manage their own learning increases autonomy and ensures engagement. *Reflective self assessment *Student choice *Student empowerment *Knowledge construction *Higher Order Thinking *Best Practice Principles
Goals Objectives and Assessments
Audience analysis strategy
Specific content and method of delivery
Alternative assessments
Authentic experiences
Learning enhancements

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